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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,291

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Rodney A. Mattson

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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CLEVELAND, OH 44143

EXAMINER

HO, ALLEN C

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,291	<b>Applicant(s)</b> MATTSON ET AL.	
	<b>Examiner</b> Allen C. Ho	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15, 16 and 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 6 is objected to because of the following informalities:  
  
Line 3, "catter" should be replaced by --scatter--.  
  
Appropriate correction is required.
2. Claim 22 is objected to because of the following informalities:  
  
Line 1, "apparatus" should be replaced by --radiation detector--.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-13 recites a detector subassembly module and a radiation absorbing mask. It is unclear whether or not the radiation detector comprises the detector subassembly module and the radiation absorbing mask because they are not positively claimed. As noted in MPEP § 2114, an apparatus claim must be structurally distinguished from the prior art. The patentability of an apparatus claim cannot be ascertained when its structure is indefinite.

Claim 7 recites "first strips parallel to anti-scatter vanes, which first strips are wider than a thickness of the anti-scatter vanes and are equal or greater than a gap between the elements of the detector array". This limitation is indefinite since it compares first strips to anti-scatter vanes, which are unknown elements not part of the radiation detector. There is no claim language that positively claims a radiation detector that comprises anti-scatter vanes. This comparison with unknown makes this limitation indefinite.

Claim 8 recites "second strips perpendicular to anti-scatter vanes, which second strips are of substantial a same dimension as a gap between the detector elements". This limitation is indefinite since it compares second strips to anti-scatter vanes, which are unknown elements not part of the radiation detector. There is no claim language that positively claims a radiation detector that comprises anti-scatter vanes. This comparison with unknown makes this limitation indefinite.

Claim 12 recites scintillation elements. This limitation is indefinite since it is unclear whether or not they are part of the scintillation array.

Claim 14 recites the limitation "an array of the detector elements". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2882

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 6, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Adachi *et al.* (U. S. Patent No. 6,304,626 B1).

With regard to claim 1, Adachi *et al.* disclosed a two-dimensional radiation detector that comprises: a first alignment means for aligning an anti-scatter module (11) with a spatial focus (2) (The fact that the anti-scatter module is aligned with the spatial focus implies the existence of a first alignment means); a second alignment means for aligning the anti-scatter module with a detector subassembly module (5) including a substrate and an array of detector elements (6) arranged on the substrate to detect radiation and a radiation absorbing mask (14) formed as a grid and arranged between the array of detector elements and the anti-scatter module (The fact that the anti-scatter module is aligned with the detector subassembly module and the radiation absorbing mask implies the existence of a second alignment means).

With regard to claim 6, Adachi *et al.* disclosed the radiation detector as set forth in claim 1, wherein the anti-scatter module includes a plurality of anti-scatter vanes (11) formed of a material is substantially absorbing for radiation (column 4, lines 49-65).

With regard to claim 12, Adachi *et al.* disclosed the radiation detector as set forth in claim 1, wherein the detector element array includes a scintillator array (12) that produces scintillation events responsive to radiation; and a photodetector element array (13), each photodetector element of the array being arranged to view one of the scintillation elements of the scintillation array.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 6-8, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman (U. S. Patent No. 6,934,354 B2) in view of Hoffman *et al.* (U. S. Patent No. 5,799,057).

With regard to claim 1, Hoffman disclosed a two-dimensional radiation detector that comprises: an anti-scatter module (84); a spatial focus (14); a second alignment means for aligning the anti-scatter module with a detector subassembly module (20) including a substrate and an array of detector elements (column 5, lines 19-23) arranged on the substrate to detect radiation and a radiation absorbing mask (90) formed as a grid (column 3, lines 8-22; column 7, lines 60-65) and arranged between the array of detector elements and the anti-scatter module (The fact that the anti-scatter module is aligned with the detector subassembly module and the radiation absorbing mask implies the existence of a second alignment means).

However, Hoffman did not disclose a first alignment means for aligning the anti-scatter module with the spatial focus.

Hoffman *et al.* disclosed an anti-scatter module (52) aligned with a spatial focus (50) (column 4, lines 32-47; column 9, lines 34-42), which prevents scattered x-rays and unwanted x-rays from impinging on the detector (column 9, lines 56-59).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a first alignment means for aligning the anti-scatter module with the spatial focus, since a person would be motivated to prevent scattered x-rays and unwanted x-rays from impinging on the detector.

With regard to claim 6, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 1, wherein the anti-scatter module includes a plurality of anti-scatter vanes (88) formed of a material is substantially absorbing for radiation (column 7, lines 2-6).

With regard to claim 7, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 6, wherein the radiation absorbing mask includes: first strips parallel to the anti-scatter vanes (along Z axis), wherein the first strips ( $W_s$ ) are wider than a thickness ( $W_c$ ) of the anti-scatter vanes and are equal to greater than a gap ( $W_r$ ) between the elements of the detector array (column 6, lines 13-64).

With regard to claim 8, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 6, wherein the radiation absorbing mask includes: second strips (along X axis) perpendicular to the anti-scatter to the anti-scatter vanes (along Z axis), wherein the second strips are of substantially a same dimension as a gap between the detector elements ( $W_s$  is substantially a same dimension as  $W_r$ ).

With regard to claim 10, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 1, wherein the radiation absorbing mask defines precise apertures, which align with and set a resolution of the elements of the detector array (column 3, lines 8-22; column 7, lines 60-65).

With regard to claim 11, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 1. Claim 10 is treated as a product-by-process claim. A product-by-process claim is not limited to the method of manufacture, only the structure implied by the method. MPEP § 2113.

With regard to claim 12, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 1, wherein the detector element array includes: a scintillation array (56) that produce scintillation events responsive to radiation; and a photodetector element array (52), each photodetector element (60) of the array being arranged to view one of the scintillation element of the scintillation array to convert light from the scintillation events into electrical signals.

With regard to claim 13, Hoffman and Hoffman *et al.* disclosed the radiation detector as set forth in claim 11, wherein the scintillation element array is arranged in a two-dimensional rectangular array (column 5, lines 13-23) with a rectangular array of interfaces between adjoining scintillation elements (Fig. 6), and the radiation absorbing mask includes: a rectangular array of strips of a radiation absorbing material that defines the grid, the strips overlaying interfaces between adjacent scintillation elements (Fig. 6).

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi *et al.* (U. S. Patent No. 6,304,626 B1) as applied to claim 6 above, and further in view of Tang (U. S. Patent No. 5,949,850).

With regard to claim 9, Adachi *et al.* disclosed the radiation detector as set forth in claim 6. However, Adachi *et al.* failed to disclose a radiation absorbing mask having stepped edges, which interleave with stepped edges of adjacent radiation absorbing masks.



Tang disclosed a radiation absorbing mask having stepped edges, which interleave with stepped edges of adjacent radiation absorbing masks (Fig. 2). Manufacturing a plurality of small radiation absorbing masks are preferred over manufacturing a large radiation absorbing mask because small radiation absorbing masks can be made accurately (column 4, lines 28-31).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a plurality of radiation absorbing masks having stepped edges for mating with adjacent radiation absorbing masks, since a person would be motivated to form a large radiation mask accurately.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman (U. S. Patent No. 6,934,354 B2) and Hoffman *et al.* (5,799,057) as applied to claim 6 above, and further in view of Tang (U. S. Patent No. 5,949,850).

With regard to claim 9, Hoffman disclosed the radiation detector as set forth in claim 6. However, Hoffman failed to disclose a radiation absorbing mask having stepped edges, which interleave with stepped edges of adjacent radiation absorbing masks.

Tang disclosed a radiation absorbing mask having stepped edges, which interleave with stepped edges of adjacent radiation absorbing masks (Fig. 2). Manufacturing a plurality of small radiation absorbing masks are preferred over manufacturing a large radiation absorbing mask because small radiation absorbing masks can be made accurately (column 4, lines 28-31).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a plurality of radiation absorbing masks having stepped edges for mating with adjacent radiation absorbing masks, since a person would be motivated to form a large radiation mask accurately.

***Allowable Subject Matter***

11. Claims 15, 16, and 18-21 are allowed.

***Response to Amendment***

12. Applicants' amendments filed 22 January 2008 with respect to the drawings have been fully considered. The objections of the drawings have been withdrawn.

13. Applicants' amendments filed 22 January 2008 with respect to the specification have been fully considered. The objection of the specification has been withdrawn.

14. Applicants' amendments filed 22 January 2008 with respect to claims 21 and 22 have been fully considered. The rejection of claims 21 and 22 has been withdrawn.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Luhta *et al.* (U. S. Patent No. 6,778,637 B2) disclosed a method and an apparatus for alignment of anti-scatter grids for computed tomography detector array.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen C. Ho/  
Primary Examiner  
Art Unit 2882

14 April 2008